

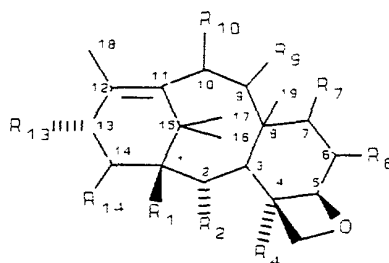
## WHAT IS CLAIMED IS:

1. A compound comprising a taxane containing at least 2 electron-affinic radiosensitizing functional groups.

2. The compound of claim 1 wherein at least one of the radiosensitizing groups is a nitro-substituted carbocyclic or heterocyclic aromatic moiety which is attached to the C2, C4, C7, C9, C10 or C14 position of the taxane.

3. The compound of claim 1 wherein said radiosensitizing groups are independently selected from nitro-substituted carbocyclic and heterocyclic aromatic moieties and wherein at least one of said radiosensitizing groups is attached to the C2, C4, C7, C9, C10 or C14 position of the taxane.

4. A compound corresponding to the structure:



wherein

M comprises ammonium or is a metal;

R<sub>1</sub> is hydrogen or hydroxy;

R<sub>2</sub> is -OT<sub>2</sub>, -OCOZ<sub>2</sub>, -OCOOZ<sub>2</sub>, RSG<sub>1</sub> or RSG<sub>2</sub>;

R<sub>4</sub> is -OT<sub>4</sub>, -OCOZ<sub>4</sub>, -OCOOZ<sub>4</sub>, RSG<sub>1</sub> or RSG<sub>2</sub>;

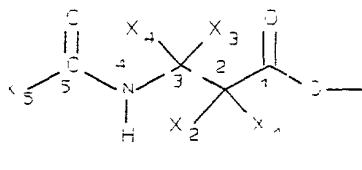
R<sub>7</sub> is hydrogen, halogen, -OT<sub>7</sub>, -OCOZ<sub>7</sub>, -OCOOZ<sub>7</sub>, RSG<sub>1</sub> or RSG<sub>2</sub>;

10  $R_9$  is hydrogen, keto,  $-OT_9$ ,  $-OCOZ_9$ ,  $-OCOOZ_9$ ,  $RSG_1$   
or  $RSG_2$ ;

$R_{10}$  is hydrogen, keto,  $-OT_{10}$ ,  $-OCOZ_{10}$ ,  $-OCOOZ_{10}$ ,  
 $RSG_1$  or  $RSG_2$ ;

15  $R_7$ ,  $R_9$ , and  $R_{10}$  independently have the alpha or  
beta stereochemical configuration;

$R_{13}$  is hydroxy, protected hydroxy, keto, MO- or



$R_{14}$  is hydrogen, hydroxy, protected hydroxy,  
 $RSG_1$  or  $RSG_2$ ;

20  $T_2$ ,  $T_4$ ,  $T_7$ ,  $T_9$  and  $T_{10}$  are independently hydrogen  
or hydroxy protecting group;

$X_1$  is  $-OX_5$ ;

$X_2$  is hydrogen, hydrocarbon, heterosubstituted  
hydrocarbon, heteroaryl, or heterosubstituted heteroaryl;

25  $X_3$  is alkyl, heterosubstituted alkyl, alkenyl,  
heterosubstituted alkenyl, alkynyl, heterosubstituted  
alkynyl, phenyl, heteroaryl, or heterosubstituted  
heteroaryl;

30  $X_4$  is hydrogen, alkyl, heterosubstituted alkyl,  
alkenyl, heterosubstituted alkenyl, alkynyl,  
heterosubstituted alkynyl, phenyl, heteroaryl, or  
heterosubstituted heteroaryl;

$X_5$  is  $-X_{10}$ ,  $-OX_{10}$ ,  $-SX_{11}$ , or  $-NX_8X_{11}$ ;

35  $X_6$  is hydrogen, hydrocarbon, heterosubstituted  
hydrocarbon, heteroaryl, heterosubstituted heteroaryl,  
hydroxy protecting group or a functional group which  
increases the water solubility of the taxane derivative;

$X_8$  is hydrogen, hydrocarbon, heterosubstituted  
hydrocarbon,  $RSG_1$  or  $RSG_2$ ;

40  $X_{10}$  is alkyl, heterosubstituted alkyl, alkenyl, heterosubstituted alkenyl, alkynyl, heterosubstituted alkynyl, phenyl, heteroaryl, or heterosubstituted heteroaryl;

$X_{11}$  is hydrocarbon, heterosubstituted  
45 hydrocarbon, heteroaryl, heterosubstituted heteroaryl, RSG<sub>1</sub> or RSG<sub>2</sub>;

$Z_2$ ,  $Z_4$ ,  $Z_7$ ,  $Z_9$  and  $Z_{10}$  are independently hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, or heterosubstituted heteroaryl;

50 RSG<sub>1</sub> is an electron-affinic moiety;

RSG<sub>2</sub> is -L-(RSG<sub>1</sub>)<sub>n</sub>;

L is a linker comprising a chain of 1 to 30 atoms in the chain, the atoms being selected from the group consisting of C, O, N, S, Si, and P; and

55 n is an integer greater than or equal to 1; provided that the compound contains at least one radiosensitizing group attached to the C2, C4, C7, C9, C10, C14, C3' or C5' position of the compound.

5. The compound of claim 4 wherein RSG<sub>1</sub> is an electron-affinic group selected from the group consisting of (i) carbocyclic and heterocyclic aromatic moieties which possess one or more carbonyl, trifluoromethyl, halogen, nitro, sulfonyl, sulfinyl, phosphoryl, oxide or cyano groups, (ii) heterocyclic aromatic moieties containing two or more heteroatoms, (iii) metal complexes, and (iv) organo-metallic groups in which the metal is covalently bonded to carbon.

6. The compound of claim 4 wherein RSG<sub>1</sub> is selected from the group consisting of imidazoles, triazoles, pyridines, benzamides, nicotinamides, benzotriazine oxides, furans, thiophenes, oxazoles and thiozoles possessing one or more carbonyl,

5

trifluoromethyl, halogen, nitro, sulfonyl, sulfinyl, phosphoryl, oxide or cyano groups.

7. The compound of claim 4 wherein

$R_1$  is hydrogen or hydroxy;

$R_2$  is  $-\text{OCOZ}_2$ ,  $\text{RSG}_1$ , or  $\text{RSG}_2$ ;

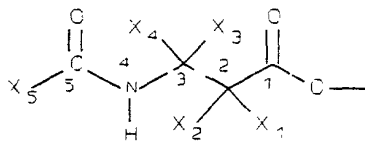
$R_4$  is  $-\text{OCOZ}_4$ ,  $\text{RSG}_1$  or  $\text{RSG}_2$ ;

5  $R_7$  is hydrogen, halogen,  $-\text{OT}_7$ ,  $-\text{OCOZ}_7$ ,  $\text{RSG}_1$  or  $\text{RSG}_2$ ;

$R_9$  is hydrogen, keto,  $-\text{OT}_9$ ,  $-\text{OCOZ}_9$ ,  $\text{RSG}_1$  or  $\text{RSG}_2$ ;

$R_{10}$  is hydrogen, keto,  $-\text{OT}_{10}$ ,  $-\text{OCOZ}_{10}$ ,  $\text{RSG}_1$  or  $\text{RSG}_2$ ;

10  $R_{13}$  is



$R_{14}$  is hydrogen, hydroxy or protected hydroxy;

$T_2$ ,  $T_4$ ,  $T_7$ ,  $T_9$  and  $T_{10}$  are independently hydrogen or hydroxy protecting group;

15  $X_1$  is  $-\text{OX}_6$ ;

$X_2$  is hydrogen;

$X_3$  is alkyl, alkenyl, phenyl, heteroaryl, or heterosubstituted heteroaryl;

20  $X_4$  is hydrogen, hydrocarbon, heteroaryl, or heterosubstituted heteroaryl;

$X_5$  is  $-\text{X}_{10}$ ,  $-\text{OX}_{10}$ ,  $-\text{SX}_{11}$ , or  $-\text{NX}_9\text{X}_{11}$ ;

$X_6$  is hydrogen or hydroxy protecting group;

$X_8$  is hydrogen, hydrocarbon, heterosubstituted hydrocarbon,  $\text{RSG}_1$  or  $\text{RSG}_2$ ;

25  $X_{10}$  is alkyl, alkenyl, phenyl, heteroaryl, or heterosubstituted heteroaryl;

$Z_2$ ,  $Z_4$ ,  $Z_7$ ,  $Z_9$  and  $Z_{10}$  are independently hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, or heterosubstituted heteroaryl;

30  $RSG_1$  is an electron-affinic moiety;

$RSG_2$  is  $-L-(RSG_1)_n$ ;

$L$  is a linker comprising a chain of 1 to 10 atoms in the chain, the atoms being selected from the group consisting of C, O, N, S, Si, and P; and

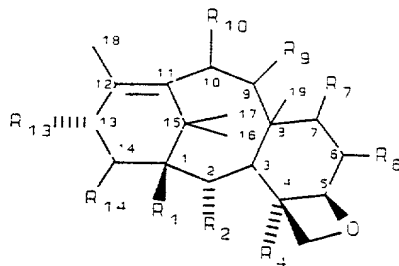
35  $n$  is 1 or 2.

8. The compound of claim 4 wherein  $RSG_1$  is a heterocyclic aromatic moiety containing two or more heteroatoms.

9. The compound of claim 4 wherein  $RSG_1$  is a metal complex.

10. The compound of claim 4 wherein  $RSG_1$  is selected from the group consisting imidazoles, triazoles, pyridines, benzamides, furans, thiophenes, oxazoles and thiozoles possessing one or more nitro groups.

11. A compound corresponding to the structure:



wherein

$M$  comprises ammonium or is a metal;

5  $R_1$  is hydrogen or hydroxy;

$R_2$  is  $RSG_1$  or  $RSG_2$ ;

$R_4$  is  $-OT_4$ ,  $-OCOOZ_4$ ,  $-OCOOZ_4$ ,  $RSG_1$  or  $RSG_2$ ;

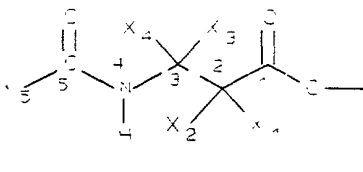
$R_7$  is hydrogen, halogen,  $-OT_7$ ,  $-OC(=O)Z_7$ ,  $-OC(=O)OZ_7$ ,

10 R<sub>9</sub> is hydrogen, keto, -OT<sub>9</sub>, -OC(=O)Z<sub>9</sub>, -OC(=O)OZ<sub>9</sub>, RSG,

$R_{10}$  is hydrogen, keto,  $-OT_{10}$ ,  $-OC(=O)Z_{10}$ ,  $-OC(=O)OZ_{10}$ ,

$R_7$ ,  $R_9$ , and  $R_{10}$  independently have the alpha or

R<sub>13</sub> is hydroxy, protected hydroxy, keto, MO- or



R<sub>14</sub> is hydrogen, hydroxy, protected hydroxy,

20  $T_2, T_4, T_7, T_9$  and  $T_{10}$  are independently hydrogen

$X_1$  is  $-OX_6$ ;

X<sub>2</sub> is hydrogen, hydrocarbon, heterosubstituted

25             $X_3$  and  $X_4$  are independently hydrogen,

$X_5$  is  $-X_{10}$ ,  $-OX_{10}$ ,  $-SX_{10}$ , or  $-NX_8X_{10}$ ;

X<sub>6</sub> is hydrogen, hydrocarbon, heterosubstituted

X<sub>8</sub> is hydrogen, hydrocarbon, heterosubstituted

35 X<sub>10</sub> is hydrocarbon, heterosubstituted

hydrocarbon, heteroaryl, heterosubstituted heteroaryl,

$Z_4$ ,  $Z_7$ ,  $Z_9$  and  $Z_{10}$  are independently hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, or

40 heterosubstituted heteroaryl;

$RSG_1$  is an electron-affinic moiety;

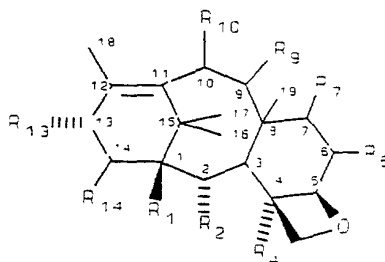
$RSG_2$  is  $-L-(RSG_1)_n$ ;

$L$  is a linker comprising a chain of 1 to 30 atoms in the chain, the atoms being selected from the group consisting of C, O, N, S, Si, and P; and

45

$n$  is an integer greater than or equal to 1.

12. A compound corresponding to the structure:



wherein

$M$  comprises ammonium or is a metal;

5  $R_1$  is hydrogen or hydroxy;

$R_2$  is  $-OT_2$ ,  $-OCOZ_2$ ,  $-OCOOZ_2$ ,  $RSG_1$  or  $RSG_2$ ;

$R_4$  is  $RSG_1$  or  $RSG_2$ ;

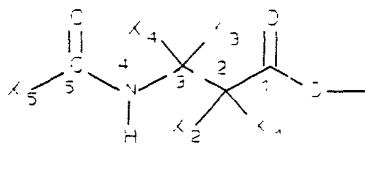
$R_7$  is hydrogen, halogen,  $-OT_7$ ,  $-OCOZ_7$ ,  $-OCOOZ_7$ ,  $RSG_1$  or  $RSG_2$ ;

10  $R_9$  is hydrogen, keto,  $-OT_9$ ,  $-OCOZ_9$ ,  $-OCOOZ_9$ ,  $RSG_1$  or  $RSG_2$ ;

$R_{10}$  is hydrogen, keto,  $-OT_{10}$ ,  $-OCOZ_{10}$ ,  $-OCOOZ_{10}$ ,  $RSG_1$  or  $RSG_2$ ;

15  $R_7$ ,  $R_9$ , and  $R_{10}$  independently have the alpha or beta stereochemical configuration;

$R_{13}$  is hydroxy, protected hydroxy, keto, MO- or



$R_{14}$  is hydrogen, hydroxy, protected hydroxy, RSG<sub>1</sub> or RSG<sub>2</sub>;

20  $T_2$ ,  $T_4$ ,  $T_7$ ,  $T_9$  and  $T_{10}$  are independently hydrogen or hydroxy protecting group;

$X_1$  is  $-OX_6$ ;

$X_2$  is hydrogen, hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, or heterosubstituted heteroaryl;

25  $X_3$  and  $X_4$  are independently hydrogen, hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, heterosubstituted heteroaryl, or RSG<sub>1</sub>;

$X_5$  is  $-X_{10}$ ,  $-OX_{10}$ ,  $-SX_{10}$ , or  $-NX_8X_{10}$ ;

30  $X_6$  is hydrogen, hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, heterosubstituted heteroaryl, hydroxy protecting group or a functional group which increases the water solubility of the taxane derivative;

$X_8$  is hydrogen, hydrocarbon, heterosubstituted hydrocarbon, RSG<sub>1</sub> or RSG<sub>2</sub>;

35  $X_{10}$  is hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, heterosubstituted heteroaryl, RSG<sub>1</sub> or RSG<sub>2</sub>;

40  $Z_2$ ,  $Z_7$ ,  $Z_9$  and  $Z_{10}$  are independently hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, or heterosubstituted heteroaryl;

RSG<sub>1</sub> is an electron-affinic moiety;

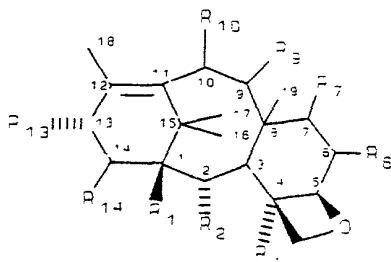
RSG<sub>2</sub> is  $-L-(RSG_1)_n$ ;

L is a linker comprising a chain of 1 to 30 atoms in the chain, the atoms being selected from the group consisting of C, O, N, S, Si, and P; and

n is an integer greater than or equal to 1.

09946 10310 9648/660

13. A compound corresponding to the structure:



wherein

M comprises ammonium or is a metal;

R<sub>1</sub> is hydrogen or hydroxy;

R<sub>2</sub> is -OT<sub>2</sub>, -OCOZ<sub>2</sub>, -OCOOZ<sub>2</sub>, RSG<sub>1</sub> or RSG<sub>2</sub>;

R<sub>4</sub> is -OT<sub>4</sub>, -OCOZ<sub>4</sub>, -OCOOZ<sub>4</sub>, RSG<sub>1</sub> or RSG<sub>2</sub>;

R<sub>7</sub> is RSG<sub>1</sub> or RSG<sub>2</sub>;

R<sub>9</sub> is hydrogen, keto, -OT<sub>9</sub>, -OCOZ<sub>9</sub>, -OCOOZ<sub>9</sub>, RSG<sub>1</sub>

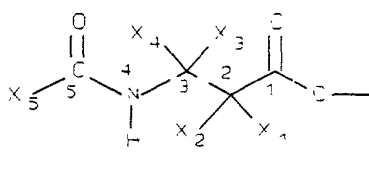
or RSG<sub>2</sub>;

R<sub>10</sub> is hydrogen, keto, -OT<sub>10</sub>, -OCOZ<sub>10</sub>, -OCOOZ<sub>10</sub>,

RSG<sub>1</sub> or RSG<sub>2</sub>;

R<sub>7</sub>, R<sub>9</sub>, and R<sub>10</sub> independently have the alpha or beta stereochemical configuration;

R<sub>13</sub> is hydroxy, protected hydroxy, keto, MO- or



R<sub>14</sub> is hydrogen, hydroxy, protected hydroxy, RSG<sub>1</sub> or RSG<sub>2</sub>;

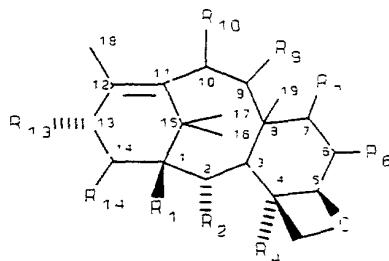
T<sub>2</sub>, T<sub>4</sub>, T<sub>9</sub>, and T<sub>10</sub> are independently hydrogen or hydroxy protecting group;

X<sub>1</sub> is -OX<sub>6</sub>;

X<sub>2</sub> is hydrogen, hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, or heterosubstituted heteroaryl;

- $X_3$  and  $X_4$  are independently hydrogen,  
 25 hydrocarbon, heterosubstituted hydrocarbon, heteroaryl,  
 heterosubstituted heteroaryl or  $RSG_1$ ;  
 $X_5$  is  $-X_{10}$ ,  $-OX_{10}$ ,  $-SX_{10}$ , or  $-NX_9X_{10}$ ;  
 $X_6$  is hydrogen, hydrocarbon, heterosubstituted  
 hydrocarbon, heteroaryl, heterosubstituted heteroaryl,  
 30 hydroxy protecting group or a functional group which  
 increases the water solubility of the taxane derivative;  
 $X_8$  is hydrogen, hydrocarbon, heterosubstituted  
 hydrocarbon,  $RSG_1$  or  $RSG_2$ ;  
 $X_{10}$  is hydrocarbon, heterosubstituted  
 35 hydrocarbon, heteroaryl, heterosubstituted heteroaryl,  
 $RSG_1$  or  $RSG_2$ ;  
 $Z_2$ ,  $Z_4$ ,  $Z_9$  and  $Z_{10}$  are independently hydrocarbon,  
 heterosubstituted hydrocarbon, heteroaryl, or  
 heterosubstituted heteroaryl;  
 40  $RSG_1$  is an electron-affinic moiety;  
 $RSG_2$  is  $-L-(RSG_1)_n$ ;  
 $L$  is a linker comprising a chain of 1 to 30  
 atoms in the chain, the atoms being selected from the  
 group consisting of C, O, N, S, Si, and P; and  
 45  $n$  is an integer greater than or equal to 1.

14. A compound corresponding to the structure:



wherein

- M comprises ammonium or is a metal;  
 5  $R_1$  is hydrogen or hydroxy;  
 $R_2$  is  $-OT_2$ ,  $-OCOZ_2$ ,  $-OCOOZ_2$ ,  $RSG_1$  or  $RSG_2$ ;

$R_4$  is  $-OT_4$ ,  $-OCOZ_4$ ,  $-OCOOZ_4$ ,  $RSG_1$  or  $RSG_2$ ;

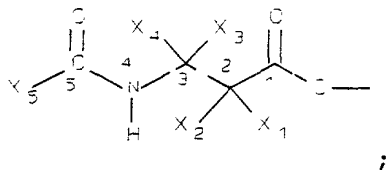
$R_7$  is hydrogen, keto,  $-OT_7$ ,  $-OCOZ_7$ ,  $-OCOOZ_7$ ,  $RSG_1$  or  $RSG_2$ ;

10  $R_9$  is  $RSG_1$  or  $RSG_2$ ;

$R_{10}$  is hydrogen, keto,  $-OT_{10}$ ,  $-OCOZ_{10}$ ,  $-OCOOZ_{10}$ ,  $RSG_1$  or  $RSG_2$ ;

$R_7$ ,  $R_9$ , and  $R_{10}$  independently have the alpha or beta stereochemical configuration;

15  $R_{13}$  is hydroxy, protected hydroxy, keto, MO- or



$R_{14}$  is hydrogen, hydroxy, protected hydroxy,  $RSG_1$  or  $RSG_2$ ;

20  $T_2$ ,  $T_4$ ,  $T_7$  and  $T_{10}$  are independently hydrogen or hydroxy protecting group;

$X_1$  is  $-OX_5$ ;

$X_2$  is hydrogen, hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, or heterosubstituted heteroaryl;

25  $X_3$  and  $X_4$  are independently hydrogen, hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, heterosubstituted heteroaryl or  $RSG_1$ ;

$X_5$  is  $-X_{10}$ ,  $-OX_{10}$ ,  $-SX_{10}$ , or  $-NX_8X_{10}$ ;

30  $X_6$  is hydrogen, hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, heterosubstituted heteroaryl, hydroxy protecting group or a functional group which increases the water solubility of the taxane derivative;

$X_8$  is hydrogen, hydrocarbon, heterosubstituted hydrocarbon,  $RSG_1$  or  $RSG_2$ ;

35  $X_{10}$  is hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, heterosubstituted heteroaryl,  $RSG_1$  or  $RSG_2$ ;

10901 949/660

$Z_2$ ,  $Z_4$ ,  $Z_7$  and  $Z_{10}$  are independently hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, or heterosubstituted heteroaryl;

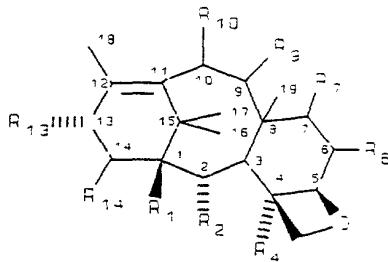
40  $RSG_1$  is an electron-affinic moiety;

$RSG_2$  is  $-L-(RSG_1)_n$ ;

$L$  is a linker comprising a chain of 1 to 30 atoms in the chain, the atoms being selected from the group consisting of C, O, N, S, Si, and P; and

45  $n$  is an integer greater than or equal to 1.

15. A compound corresponding to the structure:



wherein

$M$  comprises ammonium or is a metal;

5  $R_1$  is hydrogen or hydroxy;

$R_2$  is  $-OT_2$ ,  $-OCOT_2$ ,  $-OCOOZ_2$ ,  $RSG_1$  or  $RSG_2$ ;

$R_4$  is  $-OT_4$ ,  $-OCOT_4$ ,  $-OCOOZ_4$ ,  $RSG_1$  or  $RSG_2$ ;

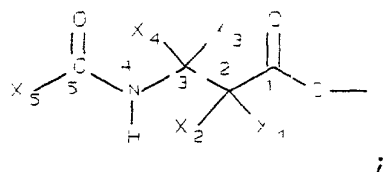
$R_7$  is hydrogen, keto,  $-OT_7$ ,  $-OCOT_7$ ,  $-OCOOZ_7$ ,  $RSG_1$  or  $RSG_2$ ;

10  $R_9$  is hydrogen, keto,  $-OT_9$ ,  $-OCOT_9$ ,  $-OCOOZ_9$ ,  $RSG_1$  or  $RSG_2$ ;

$R_{10}$  is  $RSG_1$  or  $RSG_2$ ;

$R_7$ ,  $R_9$ , and  $R_{10}$  independently have the alpha or beta stereochemical configuration;

15  $R_{13}$  is hydroxy, protected hydroxy, keto, MO- or



$R_{14}$  is hydrogen, hydroxy, protected hydroxy, RSG<sub>1</sub> or RSG<sub>2</sub>;

$T_2$ ,  $T_4$ ,  $T_7$  and  $T_9$  are independently hydrogen or hydroxy protecting group;

$X_1$  is  $-OX_6$ ;

$X_2$  is hydrogen, hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, or heterosubstituted heteroaryl;

$X_3$  and  $X_4$  are independently hydrogen, hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, heterosubstituted heteroaryl or RSG<sub>1</sub>;

$X_5$  is  $-X_{10}$ ,  $-OX_{10}$ ,  $-SX_{10}$ , or  $-NX_3X_{10}$ ;

$X_6$  is hydrogen, hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, heterosubstituted heteroaryl, hydroxy protecting group or a functional group which increases the water solubility of the taxane derivative;

$X_9$  is hydrogen, hydrocarbon, heterosubstituted hydrocarbon, RSG<sub>1</sub> or RSG<sub>2</sub>;

$X_{10}$  is hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, heterosubstituted heteroaryl, RSG<sub>1</sub> or RSG<sub>2</sub>;

$Z_2$ ,  $Z_4$ ,  $Z_7$  and  $Z_9$  are independently hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, or heterosubstituted heteroaryl;

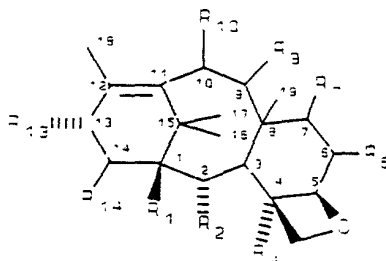
RSG<sub>1</sub> is an electron-affinic moiety;

RSG<sub>2</sub> is  $-L-(RSG_1)_n$ ;

L is a linker comprising a chain of 1 to 30 atoms in the chain, the atoms being selected from the group consisting of C, O, N, S, Si, and P; and

n is an integer greater than or equal to 1.

16. A compound corresponding to the structure:



wherein

M comprises ammonium or is a metal;

R<sub>1</sub> is hydrogen or hydroxy;

R<sub>2</sub> is -OT<sub>2</sub>, -OCOZ<sub>2</sub>, -OCOOZ<sub>2</sub>, RSG<sub>1</sub> or RSG<sub>2</sub>;

R<sub>4</sub> is -OT<sub>4</sub>, -OCOZ<sub>4</sub>, -OCOOZ<sub>4</sub>, RSG<sub>1</sub> or RSG<sub>2</sub>;

R<sub>7</sub> is hydrogen, keto, -OT<sub>7</sub>, -OCOZ<sub>7</sub>, -OCOOZ<sub>7</sub>, RSG<sub>1</sub>

or RSG<sub>2</sub>;

R<sub>9</sub> is hydrogen, keto, -OT<sub>9</sub>, -OCOZ<sub>9</sub>, -OCOOZ<sub>9</sub>, RSG<sub>1</sub>

or RSG<sub>2</sub>;

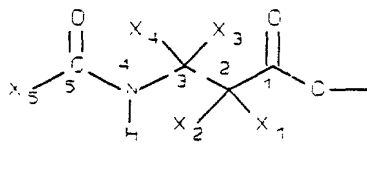
R<sub>10</sub> is hydrogen, keto, -OT<sub>10</sub>, -OCOZ<sub>10</sub>, -OCOOZ<sub>10</sub>,

RSG<sub>1</sub> or RSG<sub>2</sub>;

R<sub>7</sub>, R<sub>9</sub>, and R<sub>10</sub> independently have the alpha or

beta stereochemical configuration;

R<sub>13</sub> is hydroxy, protected hydroxy, keto, MO- or



R<sub>14</sub> is RSG<sub>1</sub> or RSG<sub>2</sub>;

T<sub>2</sub>, T<sub>4</sub>, T<sub>7</sub>, T<sub>9</sub>, and T<sub>10</sub> are independently hydrogen

or hydroxy protecting group;

X<sub>1</sub> is -OX<sub>6</sub>;

X<sub>2</sub> is hydrogen, hydrocarbon, heterosubstituted hydrocarbon, heteroaryl, or heterosubstituted heteroaryl;

- 25  $X_3$  and  $X_4$  are independently hydrogen,  
hydrocarbon, heterosubstituted hydrocarbon, heteroaryl,  
heterosubstituted heteroaryl or  $RSG_1$ ;  
 $X_5$  is  $-X_{10}$ ,  $-OX_{10}$ ,  $-SX_{10}$ , or  $-NX_8X_{10}$ ;  
 $X_6$  is hydrogen, hydrocarbon, heterosubstituted  
hydrocarbon, heteroaryl, heterosubstituted heteroaryl,  
30 hydroxy protecting group or a functional group which  
increases the water solubility of the taxane derivative;  
 $X_8$  is hydrogen, hydrocarbon, heterosubstituted  
hydrocarbon,  $RSG_1$  or  $RSG_2$ ;  
 $X_{10}$  is hydrocarbon, heterosubstituted  
35 hydrocarbon, heteroaryl, heterosubstituted heteroaryl,  
 $RSG_1$  or  $RSG_2$ ;  
 $Z_2$ ,  $Z_4$ ,  $Z_7$ ,  $Z_9$  and  $Z_{10}$  are independently  
hydrocarbon, heterosubstituted hydrocarbon, heteroaryl or  
heterosubstituted heteroaryl;  
40  $RSG_1$  is an electron-affinic moiety;  
 $RSG_2$  is  $-L-(RSG_1)_n$ ;  
 $L$  is a linker comprising a chain of 1 to 30  
atoms in the chain, the atoms being selected from the  
group consisting of C, O, N, S, Si, and P; and  
45  $n$  is an integer greater than or equal to 1.

17. A method of killing tumor cells in a warm-blooded animal, the method comprising:

- 5 (a) administering to the warm-blooded animal a taxane containing an electron-affinic radiosensitizing functional group,  
(b) followed by, after a time interval sufficient to enhance radiosensitization of the tumor cells, irradiating the tumor cells with a dose of radiation effective to kill the tumor cells.

18. A method as set forth in claim 16 further comprising heat treating the tumor cells.

10978436.10101  
10978436.10101